

## **ABSTRACT**

A work vehicle includes a frame and an axle assembly coupled to the frame. The axle assembly includes a first axle shaft and a first axle housing, with the first axle shaft disposed substantially within the first axle housing; a first wheel coupled to the first axle assembly; an axle lubricating fluid disposed within the first axle housing; and a first axle cooling device disposed within the first axle housing, in contact with at least a portion of the lubricating fluid, and including a first coil. Also disclosed is a method of cooling an axle assembly of a work vehicle. The method includes steps of removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of a coil, and removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage.